

Remarks

Claims 1-20 are pending in the application.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortuna (US 6,778,833, hereinafter "Fortuna") in view of Chennakeshu (U.S. 6,091,936, hereinafter "Chennakeshu").

Each of the various rejections and objections are overcome by amendments that are made to the specification, drawing, and/or claims, as well as, or in the alternative, by various arguments that are presented.

Entry of this Amendment is proper under 37 CFR 1.116 since the amendment: (a) places the application in condition for allowance for the reasons discussed herein; (b) does not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; (c) satisfies a requirement of form asserted in the previous Office Action; (d) does not present any additional claims without canceling a corresponding number of finally rejected claims; or (e) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. Entry of the amendment is thus respectfully requested.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewritten to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Rejection Under 35 U.S.C. 103

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fortuna in view of Chennakeshu. The rejection is traversed.

Independent claims 1 and 13 are amended to clarify that Applicant's method and system requires assigning pseudorandom number (PN) offsets to adjacent sectors within a cell with a minimum delay offset, or close to the minimum delay offset (i.e., one or possibly two additional delay offsets), therebetween. Collectively the claims, as amended, recite an upper limit of two (2) delay offsets greater than the minimum. Support is found in the Specification in at least par. 17 lines 9-11, par. 18 lines 9-11, and par. 20 lines 3-6. Entry of this amendment is proper and places the claims in a condition for allowance, as discussed below.

Dependent claims 2, 3, 5, 8, 9, 11 and 17 are amended to recite delay offsets between a minimum delay offset and two (2) greater than the minimum. Dependent claims 10 and 4 are cancelled to remove an unbounded upper limit on the delay offsets. Claim 5, which depended from cancelled dependent claim 4, is amended to now depend directly from independent claim 1.

With respect to claim 1, the Office Action fails to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), because the combination of Fortuna and

Chennakeshu fails to teach or suggest all the claim elements. In particular, Fortuna and Chennakeshu fail to teach or suggest at least the claim limitation “determining a minimum delay offset between pseudorandom number offsets that will avoid signal collision when the pseudorandom number offsets are assigned to adjacent sectors of the same cell” as positively recited in independent claim 1.

The Office Action asserts that Fortuna teaches this feature, referring to col. 4 lines 3-36 (Office Action p. 4). Applicant respectfully disagrees. In fact, the Fortuna method has nothing to do with determining the minimum delay offset (minimum temporal spacing) between PN offsets assigned to adjacent sectors of the same cell in order to avoid signal collision as in Applicant’s claim 1. Applicant’s method is directed towards avoiding signal collision due to irregularities such as propagation delays while at the same time permitting the use of a large number of possible PN offsets to assign to cell sectors in a CDMA system. For example, the specification at paragraph 11 states “Time offsets are ‘incorrect’ when PN sequence orthogonality is lost. This often occurs because of different RF signal propagation delays inherent in the transmission of radio frequencies between multiple sectors to a mobile...Because a mobile unit is generally positioned at different distances from surrounding sectors (cells), the received PN sequences are time shifted by different amounts. Orthogonality can be lost when the PN sequences from two or more sectors appear to the mobile to have the same delay or phase and are therefore indistinguishable and thus ‘collide.’”

Fortuna is oblivious to the possibility of collisions due to such effects. Instead, Fortuna is only concerned with collisions arising where a particular PN offset is reassigned to a sector nearby another sector assigned the same PN offset and two signals are thereby correlated, thus interfering with each other. For example, Fortuna states: “An exclusion range is evaluated for each sector. The exclusion range is a measure of minimal distance between the sector and others sectors having the same allocated identifier” (Fortuna col. 4 lines 11-14)(emphasis added). Thus, in Fortuna, the method calculates a minimal spatial distance (likely measured in miles or kilometers) between sectors that can be assigned the same PN offset. Applicant submits that there is nothing in Fortuna that would teach or suggest the method of claim 1 calculating a “minimum delay offset” (minimum time spacing) between the PN offsets assigned to sectors of the

same cell, for the purpose of “avoid[ing] signal collision”. The “minimum delay offset” is a unit of time, e.g., microseconds (μ s), not distance, e.g., kilometers or miles, as in Fortuna. (*see* Specification par. 9— 51.2 μ s is the approximate time to transmit one code of the 512 PN codes that are part of the PN sequence continuously repeated by a transmitter in an IS-95 CDMA system). Therefore, Fortuna fails to disclose the feature of Applicant’s claim 1 “determining a minimum delay offset between pseudorandom number offsets that will avoid signal collision when the pseudorandom number offsets are assigned to adjacent sectors of the same cell.”

The Office Action has put forth no argument to suggest that Chennakeshu supplies that which is missing from Fortuna to teach or suggest the claimed “determining a minimum delay offset between pseudorandom number offsets that will avoid signal collision when the pseudorandom number offsets are assigned to adjacent sectors of the same cell.” The Applicant also respectfully submits that Chennakeshu does not do so either, and as such, fails to bridge the substantial gap between Fortuna and the Applicant’s invention recited in independent claim 1.

Therefore, Applicant’s independent claim 1 is allowable over Fortuna in view of Chennakeshu under 35 U.S.C. 103(a).

The Office Action further asserts that while Fortuna fails to teach or disclose all elements of claim 1, Chennakeshu supplies the feature “applying delay offsets of no less than the minimum delay offset between pseudorandom number offsets assigned to adjacent sectors of the same cell” (Office Action, p. 4). Respectfully, this is also incorrect. First, Chennakeshu is not pertinent to CDMA systems at all, instead disclosing a narrowband system that incorporates features of both FDMA and TDMA. In addition, Chennakeshu is directed towards time division multiplexing of the use of a single frequency channel as between a neighboring cluster of cells that may be using the same frequency. The purpose of staggering the time slots is to avoid collisions between signals from nearby clusters that are on the same frequency. Chennakeshu states: “in a conventional system, a particular user may emit a signal sufficiently strong enough to extend from one cluster of cells to another cluster of cells wherein the same frequency is in use by another. In a satellite system...some of the signal may radiate into a neighboring cell or cluster and can interfere with another user in a neighboring cell

utilizing the same frequency” (col. 3 lines 17-24). This has nothing to do with avoiding collisions caused by time shift/propagation delays in the PN offsets of a pseudorandom number sequence as contemplated by the method of Applicant’s claim 1. In fact, Chennakeshu never mentions the PN sequence and PN offsets that are integral to any CDMA system, especially the exemplary IS-95 standard. Therefore, Chennakeshu fails to teach or disclose the feature of claim 1 “applying delay offsets of no less than the minimum delay offset between **pseudorandom number offsets** assigned to adjacent sectors of the same cell.” For at least this reason, Applicant’s independent claim 1 is allowable over Fortuna in view of Chennakeshu under 35 U.S.C. 103(a).

Independent claim 13 recites relevant limitations similar to those recited in independent claim 1. As such, for at least the same reasons discussed above, independent claim 13 also is allowable over Fortuna in view of Chennakeshu under 35 U.S.C. 103(a). Since all of the dependent claims that depend from the independent claims include all the limitations of the respective independent claim from which they ultimately depend, each such dependent claim is also allowable over Fortuna in view of Chennakeshu under 35 U.S.C. 103.

As all references have been overcome as described above, Applicant submits that the claims are in a condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the rejection.

Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully submitted,

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